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INTELLECTUAL PROPERTY LAW
EMPLOYMENT LAW

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13 March 2002

Assistant Commissioner for Patents
Box PCT
Washington, D C. 20231

Re: US NATIONAL STAGE APPLICATION UNDER THE PCT
Title: DEVICE FOR TRAINING GOLF
Intl. Appl No · PCT/FI00/00772
Intl Filing Date. 14 September 2000
Priority Date. 16 September 1999
Attorney Docket No.: PAT134USA

Dear Sir:

Enclosed for filing as a National Stage application under 35 U S C. 371 are:

[x] Credit Card Payment Form for at Least Basic national fee under **37 CFR 1.492 (a) (3)**.
[x] Copy of the International Application ([x] INCLUDING AN INTERNATIONAL SEARCH REPORT).
[x] Declaration of the inventor(s), ([ ]Unexecuted, Late Filing Practice).
[x] Preliminary Amendment under 37 CFR 1.115.
[x] Certificate of Mailing -Express (Below).
[x] Post Card Receipt.
[x] Copy of International Preliminary Examination Report ([ ] with Annexes)
[X] Other: Notice under PCT Rule 47.1 (c); and Copy of ISR

[x] Applicant(s) qualifies for small entity status.

[x] A copy of the International Application has been communicated to the USPTO by the IB, [x] copy enclosed.

FEE COMPUTATION		
TYPE		FEE DUE
Basic National Fee		$520.00
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[x] Please charge any underpayment in the basic national fee under 37 CFR 1.492 (ONLY) and/or credit any overpayment during the pendancy of this application to Deposit Account No 19-2381. A copy of this paper is enclosed. The Patent Office staff is invited to call the undersigned attorney should they have any questions about this application.

Respectfully submitted,

Joel D. Skinner, Jr , Reg. No. 33,786
Enclosures
cc: Pauli Laitinen, Esq.
\\NT_SERVER\SHARED\CLIENTS\Laitinen-Finland\Golf Training Device\020226TransToPTO5-2.DOC

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CERTIFICATE OF MAILING (IF APPLICABLE)

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Name

Therese M. Stacy
Signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Suhonen

Serial No.:

Date Filed:

Title: Device For Training Golf

Group Art Unit/Examiner:

Attorney Docket No.: PAT134USA

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Box Patent Application
Washington, D.C. 20231

Dear Sir:

Please amend this application as follows:

IN THE CLAIMS:

Please amend existing claims with replacement claims as follows:

1. A golf practice apparatus, comprising: a frame, a ball attached to the frame by means of a suspension device, a buffer component attached to the suspension device for stopping the ball in flight, and devices for recording the direction and length of flight of the ball, characterized in that the buffer component is located at a level that approximately corresponds to the horizontal position of the suspension device and that the recording devices for the direction and/or length of flight of the ball are disposed essentially between the buffer component and the attachment point of the suspension device.

2. An apparatus according to Claim 1, characterized in that the devices for recording the direction and/or length of flight of the ball are of a type that records the position of the ball and/or suspension device in a situation in which the ball strikes the buffer component or its vicinity.

3. An apparatus according to Claim 1, including a display for showing the position of the ball.

4. An apparatus according to Claim 1, characterized in that the devices for recording the direction and/or length of the ball's flight are a type of control switch that determines the lateral position of the suspension device of the ball.

5. An apparatus according to Claim 1, characterized in that the devices for recording the direction and/or length of flight of the ball are a type of mechanical switch.

6. An apparatus according to Claim 1, characterized in that the devices for recording the direction and/or length of flight are based on using light.

7. An apparatus according to Claim 1, characterized in that the devices for recording the direction and/or length of flight of the ball are located at the point of attachment of the ball's suspension device.

8. An apparatus according to Claim 1, characterized in that the device for measuring the length of the flight of the ball and also the device for measuring the direction of of the flight of the ball are connected to the movements of the ball's suspension device.

9. An apparatus according to Claim 1 characterized in that it includes impulse sensors for recording the movements and/or position of the suspension device.

10. An apparatus according to Claim 1, characterized in that the buffer device is located approximately on the level of the attachment point of the suspension device and is essentially horizontal with a stopping surface on its underside, and that the device for recording the direction of flight of the ball is essentially slightly lower than said level, between the attachment point of the suspension device and the buffer component.

11. An apparatus according to Claim 1, characterized in that the device for recording the direction of flight of the ball comprises sensor devices arranged transversely to the direction of flight of the ball.

12. An apparatus according to Claim 3, characterized in that the display of the apparatus comprises a field of indicator lights or a display screen of a computer, from which the change in position of the ball, derived from the results of the recording devices, can be seen on a fairway shown on the display.

13. An apparatus according to Claim 1, characterized in that the buffer component is adjustable.

14. An apparatus according to Claim 1, characterized in that the apparatus also includes a flap-like buffer for stopping the backwards and forwards swing of the ball and the suspension device.

15. An apparatus according to Claim 1, characterized in that the device for measuring the direction of flight of the ball is based on the joystick principle.

ATTACHMENT(S):

Attached hereto is a marked-up version of the changes made to the Title/Specification/Claims/Abstract by the current amendment. The attached page(s) is captioned "Version With Markings to Show Changes Made."

REMARKS

This Preliminary Amendment is made for the purpose of bringing the PCT or foreign based application closer to US practice standards and not necessarily to limit the claims.

Should the Examiner believe that telephone communication would advance the prosecution of this case to finality, she or he is invited to call at the number below.

Please charge any fee due not paid by a check or credit card provided herewith, and/or charge any underpayment in any fee, and/or credit any overpayment in fee, to Deposit Account No. 19-2381.

Respectfully submitted,

Date: 3-13-02

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Amended) A golf practice apparatus [(1), which comprises] , comprising: a frame [(2)], a ball [(5)] attached to the frame by means of a suspension device [(4)], a buffer component [(7)] attached to the suspension device for stopping the ball in flight, and devices [(3, 8)] for recording the direction and length of flight of the ball, characterized in that the buffer component [(7)] is located at a level that approximately corresponds [more or less] to the horizontal position of the suspension device [(4)] and that the recording devices [(3, 8)] for the direction and/or length of flight of the ball are [located in a place that is] disposed essentially between the buffer component [(7)] and the attachment point of the suspension device.

2. (Amended) An apparatus according to Claim 1, characterized in that the devices [(3, 8)] for recording the direction and/or length of flight of the ball are of a type that records the position of the ball [(5)] and/or suspension device [(4)] in a situation in which the ball [(5)] strikes the buffer component [(7)] or its vicinity.

3. (Amended) An apparatus according to Claim 1, [characterized in that the device also includes] including a display [(9)] for showing the position of the ball [and possibly other information].

4. (Amended) An apparatus according to Claim 1, characterized in that the devices [(3, 8)] for recording the direction and/or length of the ball's flight are a type of control switch [or similar] that determines the lateral position of the suspension device [(4)] of the ball [and possibly shows its position on the display (9)].

5. (Amended) An apparatus according to Claim 1, characterized in that the devices [(3, 8)] for recording the direction and/or length of flight of the ball are a type of mechanical switch.

6. (Amended) An apparatus according to [one of the above Claims] Claim 1, characterized in that the devices for recording the direction and/or length of flight are based on using light[, such as infrared light, for example, in the manner used to move the cursor of a computer mouse].

7. (Amended) An apparatus according to Claim 1, characterized in that the devices for recording the [length of stroke] direction and/or length of flight of the ball are located at the point of attachment of the ball's suspension device [(4)].

8. (Amended) An apparatus according to [one of the above Claims] Claim 1, characterized in that the device for measuring the length [of stroke] of the flight of the ball and also the device [(3)] for measuring [its] the direction of [stroke] of the flight of the ball are connected to the movements of the ball's suspension device [(4)].

9. (Amended) An apparatus according to [one of the above Claims,] Claim 1 characterized in that it includes impulse sensors for recording the movements and/or position of the suspension device [(4)].

10. (Amended) An apparatus according to Claim 1, characterized in that the buffer device [(7)] is located [more or less] approximately on the level of the attachment point of the suspension device and is essentially horizontal with a stopping surface on its underside, and that the device [(8)] for recording the direction of [stroke] flight of the ball is essentially slightly lower than [the] said level, between the attachment point of the suspension device [(4)] and the buffer component [device (7)].

11. (Amended) An apparatus according to [one of the above Claims] Claim 1, characterized in that the device [(8)] for recording the direction of [stroke] flight of the ball comprises sensor devices arranged transversely to the direction of flight of the ball.

12. (Amended) An apparatus according to [one of the above Claims] Claim 3, characterized in that the display [(9)] of the apparatus comprises a field of indicator lights or [the] a display screen [(9)] of a computer, from which the change in position of the ball, derived from the results of the [measurement] recording devices, can be seen on a fairway shown on the display [(9)].

13. (Amended) An apparatus according to [one of the above Claims] Claim 1, characterized in that the buffer component [(7) can be adjusted] is adjustable.

14. (Amended) An apparatus according to [one of the above Claims] Claim 1, characterized in that the apparatus also includes a flap-like buffer [(10)] for stopping the backwards and forwards swing of the ball [(5)] and the suspension device [(4)].

15. (Amended) An apparatus according to [one of the above Claims] Claim 1, characterized in that the [apparatus] device for measuring the direction of [stroke] flight of the ball is based on the joystick principle.

Device for training golf

The present invention relates to a golf practice apparatus according to the preamble to claim 1. Specifically it relates to such a practice apparatus, which, at its best, can be used to determine the stroke's power and direction, to achieve the best possible practice result.

A large number of golf practice apparatuses are known. These are based on a great variety of operating principles. In some, a golf ball or similar object to be struck is located at the end of a rigid arm. In such constructions, the player entirely loses the real feel of playing golf, as a rigid construction cannot give a real sense of striking a ball. In another kind of apparatus, a flexible wall is simply set up, and returns the balls as they are struck. This apparatus gives no information on the stroke's strength, while even its direction can only be seen by staring at the possible place the ball strikes and observing it visually.

In yet another type of apparatus, which includes the present apparatus, the ball is suspended in a suitable suspension device. In one such apparatus, the ball is suspended from a vertical axle, the power of the stroke being measured from the ball's horizontal rotation. In another, a ball connected to a suspension device rotates on a horizontal bar, while measurement takes place similarly to the previous case.

In the following, various publications are referred to using only their numbers. US patent publications 3,031,889; 5,386,997; and 3,666,271; as well as 4,014,552; 4,971,326; 3,784,207; and 5,011,155. Other solutions relating to the field are disclosed in publications GB-1070409 and GB-1164053.

These and other known solutions have certain drawbacks, which are next examined briefly. The apparatuses referred to have not resolved the controlled and rapid return of the ball, or the electrical measurement of the degree of deviation of the ball's direction of flight. They also do not show the change, made by the stroke, in the position of the ball on a fairway shown on the display. In the solutions using some form of measurement of the direction of flight of the ball, measurement is often too early, before the final direction of the ball is known, giving erroneous or at least

inaccurate measurements.

The present invention is intended to eliminate these drawbacks, facilitate the practice of strokes, and show the precise effect of even a small change in stroke during golf practice. An adapted embodiment of the invention allows real clubs to be used in home golf practice. Thus, in the best case, it is possible to show play different golf courses on a computer display.

These and other advantages and benefits of the invention are achieved by means of an apparatus according to the invention, the characteristics of which are disclosed in the accompanying Claims.

In brief, it can be stated that, according to the invention, the ball is suspended on a line or similar suspension device, which places the ball slightly above the striking base. However, to avoid swings that would disturb the placing and striking of the ball, it is best to place the ball so that it at least touches the base or tee. This also makes it possible to move the ball to some extent, to obtain the best striking point. The suspension must not, however, be so loose that the point where the suspension device is attached to the ball can move away from the topmost part of the ball.

Naturally, the upper end of the suspension device is attached to a suitable frame construction. In its simplest form, the attachment can be direct, but it is best arranged through a device that can be used to illustrate the length of the stroke. When the ball is struck, it begins a pendulum motion defined by the suspension device, following a nearly circular path, as described later in greater detail. The direction of motion of the ball naturally depends on the force and especially the direction of the impact when the club strikes it.

In the striking base of the apparatus there is a raised cushion-like buffer component in the path of the ball, to which the ball rises due to the force of the stroke and from which the ball swings back in a controlled manner, to be struck again. The force of the stroke on the ball tightens the suspension device into a straight line, while the pendulum-like movement of the ball, stopped by the buffer cushion, keeps the suspension device straight for as long as the ball is stopped. A connecting device

can be used to measure the precise direction of flight of the ball from the direction of the line or other suspension device. The assumed distance of the flight of the ball is measured from the amount of movement of the suspension device against a suitable restraining force. According to one embodiment of the invention, the direction and distance measurements obtained from a stroke create a visible mark on the display, depicting the real path or rather end point of the flight of the ball

The invention is next examined with reference to the accompanying drawing, showing a simplified depiction of one embodiment of the invention.

Thus, apparatus 1 is formed by a frame construction 2, to which all the essential components required by the invention are attached directly or by means of suitable intermediate components. The frame can be of any shape, though the figure shows it as being formed by legs. The attachment device 3 of the suspension device 4 of the ball, which usually includes a device measuring the direction or length of the stroke, is located in one set of legs of frame 2. The ball 5 is attached to the lower end of suspension device 4, with ball 5 hanging freely from the suspension device and preferably physically placed to touch the striking base or tee.

The golfer 6 takes up a conventional striking position in relation to ball 5 and strikes the ball from this position, just as if playing on a normal golf course.

The frame of the apparatus is shaped so as to leave suitable space for the path of the club, so that the swing cannot hit the apparatus. In fact, the whole apparatus remains inside the arc of the stroke of the club.

In the direction of the stroke on the path of the ball rising from the striking base, at roughly the distance of the ball from suspension device 4, there is a buffer 7, onto which ball 5 swings at the end of suspension device 4 when struck, and from which it rebounds like a pendulum mainly guided by its suspension device 4, to be struck again. Though the stopper surface of buffer component 7 is usually horizontal or nearly horizontal, it can of course be sloped or shaped appropriately to create specific properties. A slope can also be achieved by suitable shaping the cushion component.

In an apparatus according to the invention, ball 5 stops with the suspension device in an approximately horizontal position. The stopping impact is physically received by the bottom surface of buffer component 7. This reduces the stress on the ball's attachment and suspension device and also keeps the suspension device more or less straight, not only over its entire path, but also in the stopping stage.

Obviously, the recoil of ball 5 and other properties can be influenced by selecting an appropriate material for the surface of buffer component 7, which receives the ball. Buffer component 7 can also be adjustable. The ball is returned by gravity, to be struck again.

The direction of the stroke is measured using the direction of movement of suspension device 4. Obviously, there is a wide variety of ways of measuring the direction. Usually, the position of suspension device 4 is measured, in a suitable manner, when it is more or less horizontal, i.e. at or near the end point of its pendulum movement. The direction of the ball can then be reliably measured. The measurement device is marked with the general reference number 8. In certain conditions, measurement can also take place when the ball is already returning to its starting position, though the measurement then involves more uncertainty factors.

Though the figure does not show this in any detail, one alternative is to use a mechanical switch to show the direction of the suspension device. This can be done, for example, using a pin, which suspension device 4 raises to show where suspension device 4 has passed. Several pins can be used in parallel, or else only a single pin can be used to show when the stroke has been on target. The pins can be fitted so that a pin that has risen will remain in place until returned to its initial position, for instance, by being pushed by hand.

Another possible alternative mechanical switch is a plate-like component jointed to a bar, which changes its position when the suspension device strikes it. As in the previous example, the apparatus can be constructed so that the plate remains in the position into which the suspension device has pushed it. Numerous plate-like or other indicator components can be used in parallel.

In one embodiment, electrical switches showing the position of the suspension device, for instance by lighting a lamp or transmitting the position to display 9, can be used instead of mechanical switches.

Suitable guides can be used with the indicator components described above to prevent the suspension device from striking two indicator components simultaneously or going between the indicator components. Examples of such guides are pins with more or less sharp ends, or plates between the indicator components, placed especially at the joint between two adjacent indicator components.

Yet other applications can be used. For example, sensors can be set in the attachment end of suspension device 4, i.e. at the upper end of device 3, to monitor the direction and length of the suspension device, for example, in the same way as a mouse is used to move a computer cursor, and to transmit it to display 9, where a suitable indicator image appears in place of the ball. The direction and/or length can also be monitored using an infrared sensor, a principle used in the latest computer mouses. Another method is to use devices like control switches, which are connected to monitor the position of the suspension device of the ball and to transmit information on the direction of the stroke, preferably electronically, to display 9. Another arrangement is based on a so-called joystick, the movements of which can be suitably shown on the display. Suspension device 4 can be connected to control the joystick either directly or indirectly.

In addition, sensors can be placed in apparatus 1 to monitor the position of suspension device 4, for example, by measuring it from two directions, allowing the exact position of suspension device 4 to be determined. Such measurements can be carried out in any known manner at all, for example, by using infrared or similar light. Obviously, it is possible to measure the position of the ball instead of the position of the suspension device.

Device 3 also includes devices to measure the length of the stroke. At its simplest, this takes place by having the suspension device reel off a braked component or having the suspension device held in place and its movement opposed by a spring,

so that a stroke aimed at the ball tends to pull the suspension device in the direction of the stroke. This movement is measured precisely and the result is shown in a suitable manner, especially as a value shown in figures on the display or as a mark indicating the length of the stroke on the display. Such measurement of the stroke's length is naturally based on the fact that a harder stroke will cause a greater force pulling the suspension device in the direction of the stroke, when a suspension device braked with a spring or similar device will reel out more than with a weaker stroke. The force is converted into units of length.

In its best form, display 9 can have various golf courses entered as backgrounds. The position of the ball derived from the measurements disclosed above can then be shown against such a background, creating an apparently very real practice situation. If desired and in practice the display can be made to move forward in sections, allowing all parts of the display to be shown sufficiently clearly. The ball is shown on the display in a manner selected to suit each user.

One way of showing the direction of the ball and the length of stroke, applies the principle used in devices, in which marks, such as lines, made with a pen-like device on a certain kind of drawing board, are transferred to the screen of a computer terminal. Such a device can be used to make the 'pen' track the movement of the suspension device or ball and transmit it via the drawing board to the actual display. If required, such an image can also be printed.

A possible addition to an apparatus according to the invention is a flap-like return buffer, shown in the figure with the reference number 10. This flap can be made of any material and is mainly intended to stop the suspension device and ball when they return to the striking position after a stroke, preventing them from swinging backwards and forwards. This accelerates the cycle of practice strokes and eliminates the extra work needed to place the ball.

It is obvious that only some of the possible practical components are referred to above by name. These and other components and methods not referred to can be combined as desired to achieve a final result appropriate to any situation. For example, the base can be fitted with a joint allowing the apparatus to be tilted

suitably and in the desired direction, if required. If desired, various sound signs and effects can be used in place of or in addition to the display, to enliven practice or to make it more illustrative.

Although the figure shows only one alternative construction of the base, any permanently installed or moveable base can be used for this purpose. Thus, if desired, the apparatus can be placed in a room for practice, then moved after practice to a suitable storage place. There are very many alternative bases.

The invention is not restricted to the embodiments disclosed above, but can be varied according to the basic idea disclosed and within the scope of the accompanying Claims.

Claims

1. A golf practice apparatus (1), which comprises a frame (2), a ball (5) attached to the frame by means of a suspension device (4), a buffer component (7) attached to the suspension device for stopping the ball in flight, and devices (3, 8) for recording the direction and length of flight of the ball, **characterized** in that the buffer component (7) is located at a level that corresponds more or less to the horizontal position of the suspension device (4) and that the recording devices (3, 8) for the direction and/or length of flight of the ball are located in a place that is essentially between the buffer component (7) and the attachment point of the suspension device.

2. An apparatus according to Claim 1, **characterized** in that the devices (3, 8) for recording the direction and/or length of flight of the ball are of a type that records the position of the ball (5) and/or suspension device (4) in a situation in which the ball (5) strikes the buffer (7) or its vicinity.

3. An apparatus according to Claim 1, **characterized** in that the device also includes a display (9) for showing the position of the ball and possibly other information.

4. An apparatus according to Claim 1, **characterized** in that the devices (3, 8) for recording the direction and/or length of the ball's flight are a type of control switch or similar that determines the lateral position of the suspension device (4) of the ball and possibly shows its position on the display (9).

5. An apparatus according to Claim 1, **characterized** in that the devices (3, 8) for recording the direction and/or length of flight of the ball are a type of mechanical switch.

6. An apparatus according to one of the above Claims, **characterized** in that the devices for recording the direction and/or length of flight are based on using light, such as infrared light, for example, in the manner used to move the cursor of a computer mouse.

7. An apparatus according to Claim 1, **characterized** in that the devices for recording the length of stroke and/or length of flight of the ball are located at the point of attachment of the ball's suspension device (4).

8. An apparatus according to one of the above Claims, **characterized** in that the device for measuring the length of stroke of the ball and also the device (3) for measuring its direction of stroke are connected to the movements of the ball's suspension device (4).

9. An apparatus according to one of the above Claims, **characterized** in that it includes impulse sensors for recording the movements and/or position of the suspension device (4).

10. An apparatus according to Claim 1, **characterized** in that the buffer device (7) is located more or less on the level of the attachment point of the suspension device and is essentially horizontal with a stopping surface on its underside, and that the device (8) for recording the direction of stroke of the ball is essentially slightly lower than the said level, between the attachment point of the suspension device (4) and the buffer device (7).

11. An apparatus according to one of the above Claims, **characterized** in that the device (8) for recording the direction of stroke of the ball comprises sensor devices arranged transversely to the direction of flight of the ball.

12. An apparatus according to one of the above Claims, **characterized** in that the display (9) of the apparatus comprises a field of indicator lights or the display screen (9) of a computer, from which the change in position of the ball, derived from the results of the measurement devices, can be seen on a fairway shown on the display (9).

13. An apparatus according to one of the above Claims, **characterized** in that the buffer component (7) can be adjusted.

14. An apparatus according to one of the above Claims, **characterized** in that the

apparatus also includes a flap-like buffer (10) for stopping the backwards and forwards swing of the ball (5) and the suspension device (4).

15. An apparatus according to one of the above Claims, **characterized** in that the apparatus for measuring the direction of stroke of the ball is based on the joystick principle.

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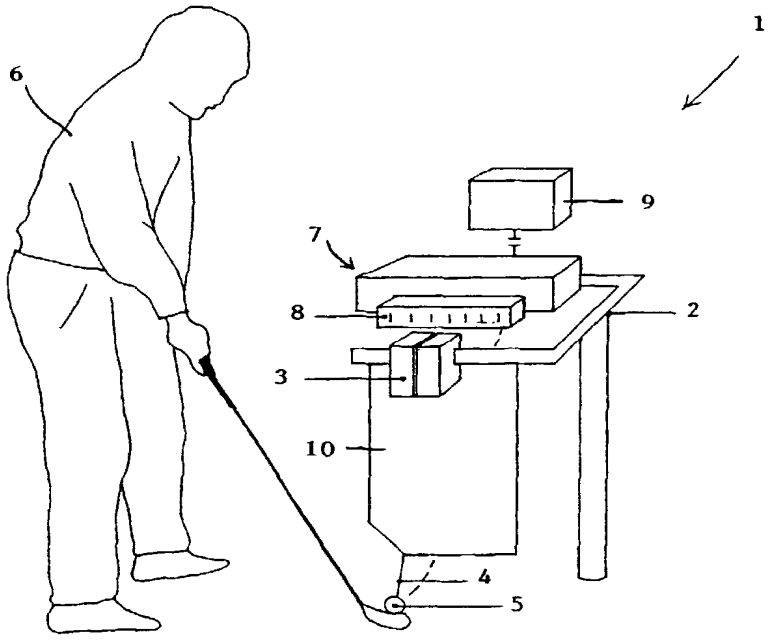
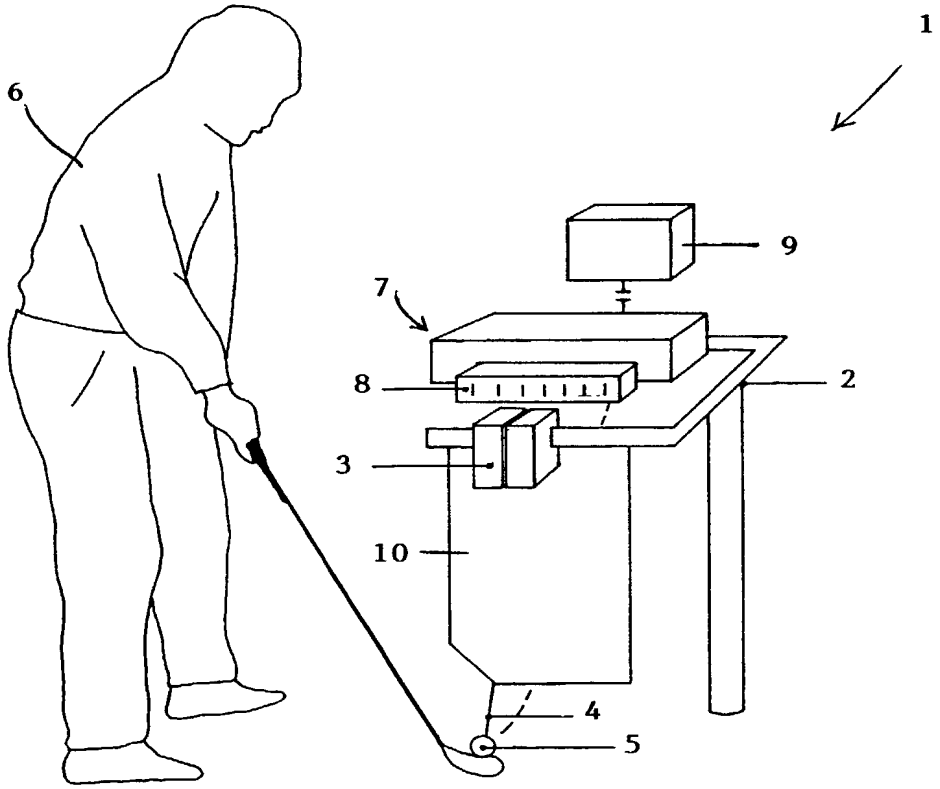
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette

(54) Title: DEVICE FOR TRAINING GOLF



(57) Abstract: A golf practice apparatus, in which the strokes of a ball (5) suspended in a frame construction (2) by means of a suspension device (4) are controlled by means of a buffer (7) located in the path of the ball. The apparatus includes devices (3, 8) for measuring the flight and direction of stroke of the ball. The position of the ball on a fairway shown on the display (9) of the apparatus is derived electronically from the results.

WO 01/19468 A1



FIG

Please type a plus sign (+) inside this box → [+]

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

☐ Declaration Submitted with Initial Filing OR ☐ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number	PAT134USA
First Named Inventor	SUHONEN
COMPLETE IF KNOWN	
Application Number	
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

DEVICE FOR TRAINING GOLF

(Title of the Invention)

the specification of which
☐ is attached hereto
OR
☐ was filed on (MM/DD/YYYY) ☐ as United States Application Number or PCT International Application Number ☐ and was amended on (MM/DD/YYYY) ☐ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
19991962	Finland	09/16/1999	☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)

☐ Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

Burden Hour Statement: This form is estimated to take 0.4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. ☒ Customer Number 24339 → *Place Customer Number Bar Code Label here*
OR
☐ Registered practitioner(s) name/registration number listed below

Name	Registration Number	Name	Registration Number

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto

Direct all correspondence to: ☒ Customer Number or Bar Code Label 24339 OR ☐ Correspondence address below

Name					
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City		State		ZIP	
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name (first and middle [if any])		Family Name or Surname
Pentti	Olavi	Suhonen

1-00

Inventor's Signature	Pentti Suhonen					Date	15 FEBR. 02
Residence: City	Lahti FIX	State		Country	FINLAND	Citizenship	FI
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City	Lahti	State		ZIP		Country	FINLAND

☐ Additional inventors are being named on the ____ supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto